



ITS based City Logistics scheme of Maribor

By

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12th BESTUFS Workshop

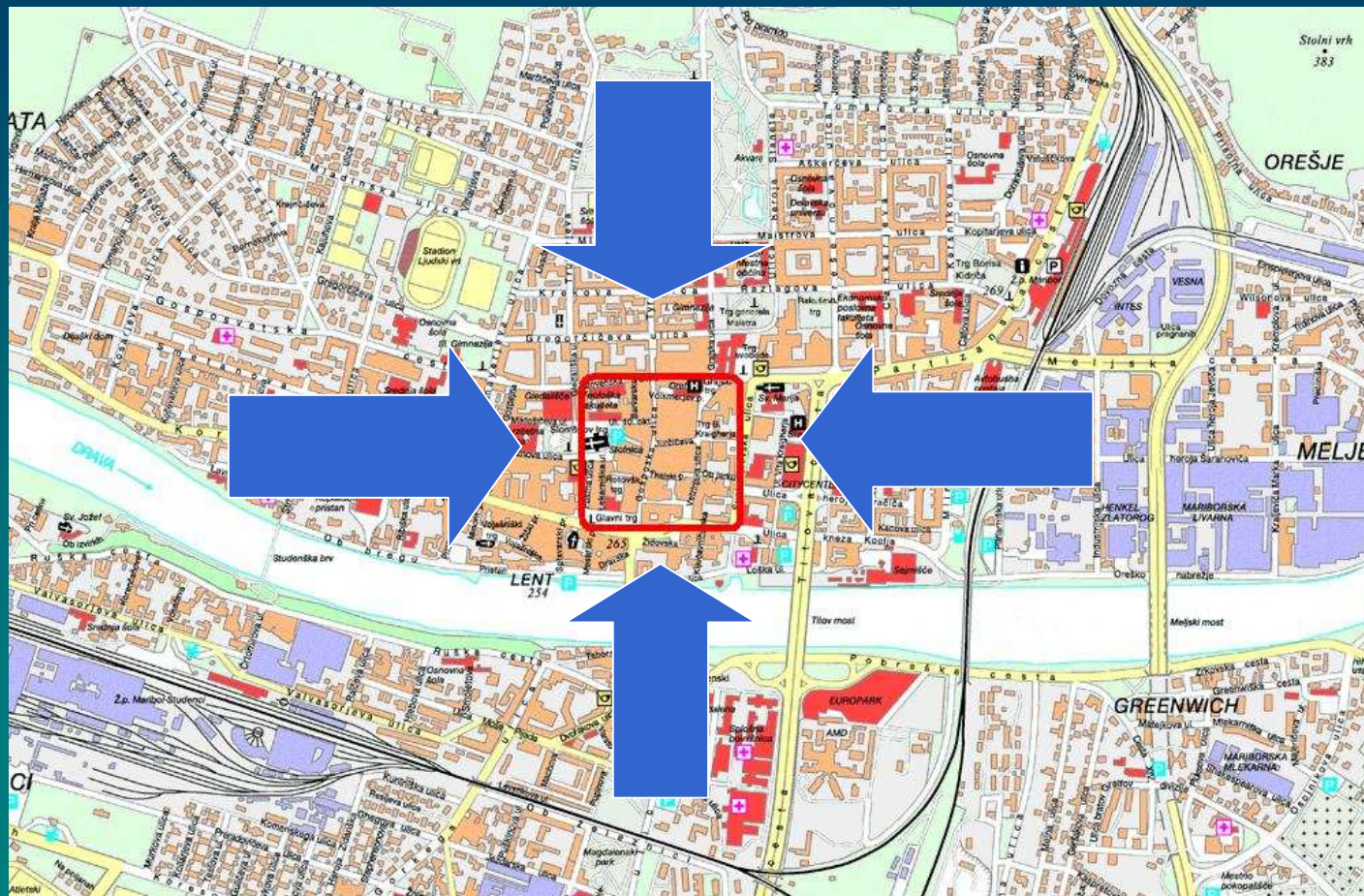
13th – 14th October 2003, Maribor/Slovenia

MARIBOR

- Area: 147km²
- Population 150.000

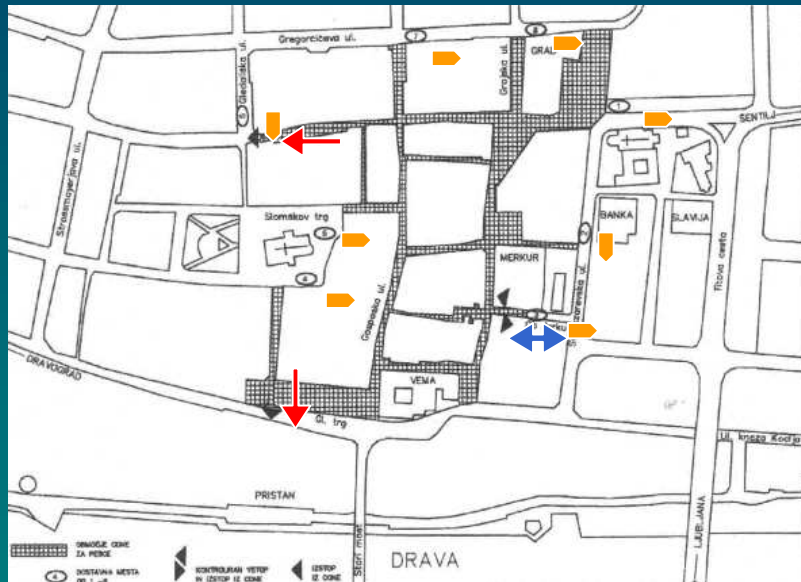


MARIBOR CITY ZONE



PREVIOUS SOLUTION

- One entrance/exit spot (barrier)



- Two exit spots
- Deliveries allowed only during the night. (from 21h through 7h)
- Deliveries during the day was allowed only to the special delivery areas. (Deliveries from/to delivery areas: by non motorized vehicles.)

UPGRADING REASONS

- Increase of business units and business activity
- Increase of residents' number of vehicles
- One entrance system: too long transport paths
- Congestion on (one) entrance/exit spot
- New service demand
- Change of the business structure: change of the delivery needs
- Frequent violation of the system (human factor)

NEW SOLUTION

ENTRANCE/EXIT GATES



NEW SOLUTION

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NEW SOLUTION

ENTRANCE/EXIT GATES



NEW SOLUTION

ENTRANCE/EXIT GATES



ENTRANCE-GENERAL CONDITIONS

ENTRANCE ALLOWED ONLY WITH PERMISSION:

- City based Business Units
- Certified (through City based shop-keepers) Suppliers / Transport companies
- Public services (Ambulance, Police, City mini-bus, etc.)
- Invalides
- Residents, (Tenants/Owners of Apartments and Garages)
- Hotel Orel guests

DELIVERY TIME:

- **REGULAR:** Daily from 6h to 9h and from 19h to 22h, Saturdays, Sundays, holidays from 13h to 15h.
- **EXCEPTIONS:** only with special permission and paid entrance fee (for trucks up to 3,5 t): perishable goods deliveries, construction and maintenance works, security and taxi.

ENTRANCE-GENERAL CONDITIONS

DURATION OF DELIVERY IN THE CITY ZONE

- Limited on 40 minutes for all delivery vehicles

PARKING/STOPPING

- **PARKING:** not allowed on public traffic areas
- **STOPPING:** limited on 15 minutes, for a delivery spot, (special written certificate on board is required)

VEHICLE WEIGHT

- Limited up to 3,5 ton
- Above 3,5 ton (entrance fee, special permit)
- Delivery with vehicles above 3,5 ton is allowed only in the case of specific goods (dimension, weight etc) that can not be delivered with 3,5 ton vehicle.

ENTRANCE FEES

Entrance fee is paid:

- For the deliveries out of regular delivery time
- For vehicles over 3.5 ton

One year entrance fee, vehicles up-to 3.5 ton (perishable goods)	350 EUR
One day entrance fee for trucks up to 3.5 ton	50 EUR
One day entrance fee: trucks above 3,5 ton	210 EUR
One day entrance fee (passenger) cars	5 EUR
FINE: for each commencing hour above allowed 40 minutes,	10 EUR

ENTRANCE/EXIT SPOT EQUIPMENT

- Sink cylinder



ENTRANCE/EXIT SPOT EQUIPMENT

- Sink cylinder
- Identification column



ENTRANCE/EXIT SPOT EQUIPMENT

- Sink cylinder
- Identification column
- Stop-go sign column



ENTRANCE/EXIT SPOT EQUIPMENT

- Sink cylinder
- Identification column
- Stop-go sign column
- Control box



ENTRANCE/EXIT SPOT EQUIPMENT

- Sink cylinder
- Identification column
- Stop-go sign column
- Control box
- Inductive loop

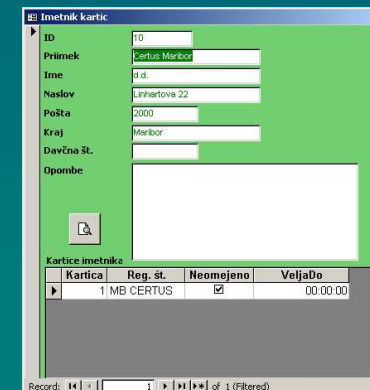


INFORMATION SYSTEM

- Hardware
 - Pc
 - Modem



- Software
 - Program



ENTRY CARD

- RF-ID card



SYSTEM PERFORMANCE

ENTRANCE CARD



- *ID NUMBER ASSESMENT*
- *SISTEM KODE ASSESMENT*

SYSTEM PERFORMANCE

DATA PARAMETERS

Kartica

Številka: 1

Reg. št.: MB CERTUS

Opis:

Znamka:

Tip:

Barva:

Pikapolonica:

Imetnik kartice

Imetnik: Certus Maribor d.d.

Certus Maribor

d.d.

Linhartova 22

2000 Maribor

Dav. št.:

Skupina kartice: [dropdown] Reset prisotn. [checkbox]

Brez kontrole Neomejeno

	Vhod	Izhod	Blok
Prehod A	<input type="checkbox"/>	<input type="checkbox"/>	Brez bloka
Prehod B	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Brez bloka
Prehod C	<input type="checkbox"/>	<input type="checkbox"/>	Brez bloka

Urniki:

Urnik 1 <input checked="" type="checkbox"/>	Urnik 5 <input type="checkbox"/>	Urnik 9 <input type="checkbox"/>	Urnik 13 <input type="checkbox"/>
Urnik 2 <input type="checkbox"/>	Urnik 6 <input type="checkbox"/>	Urnik 10 <input type="checkbox"/>	Urnik 14 <input type="checkbox"/>
Urnik 3 <input type="checkbox"/>	Urnik 7 <input type="checkbox"/>	Urnik 11 <input type="checkbox"/>	Urnik 15 <input type="checkbox"/>
Urnik 4 <input type="checkbox"/>	Urnik 8 <input type="checkbox"/>	Urnik 12 <input type="checkbox"/>	Urnik 16 <input type="checkbox"/>

Record: 1 of 562

CARD OWNER

- Name and Surname
- Address

VEHICLE DATA

- Register plate number
- Vehicle type

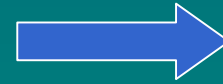
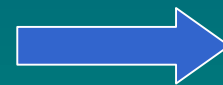
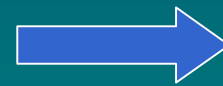
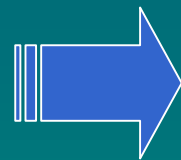
ENTRANCE/EXIT DATA

- Entrance/Exit gate
- Entrance/Exit time,
- Schedule time

SYSTEM PERFORMANCE

DATA FLOW (ONCE IN 24h)

NEW DATA: ID, NUMBER OF GATE, TIME OF ENTRY/EXIT



GATE

1

2

3



UPDATED DATA ABOUT EXIT AND ENTRY

SYSTEM PERFORMANCE

ENTERING / EXIT PROCEDURE

- Stop at inductivity loop,
- Automatically activates the identification column



SYSTEM PERFORMANCE

ENTERING / EXIT PROCEDURE

- Pass ID Card close to the identification column...



SYSTEM PERFORMANCE

ENTERING / EXIT PROCEDURE

- Sink cylinder sinks
- Start driving by the green light



SYSTEM PERFORMANCE

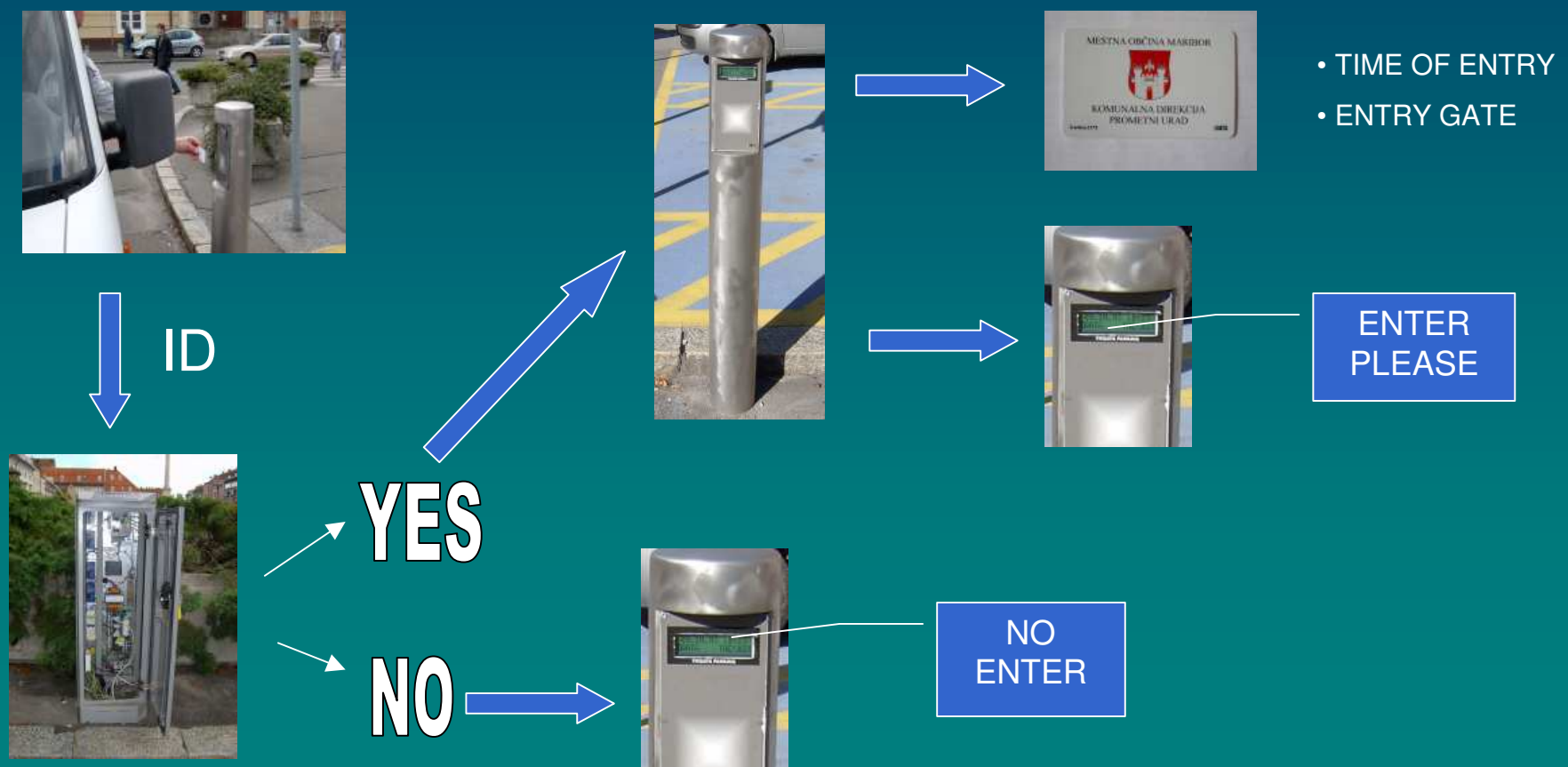
ENTERING / EXIT PROCEDURE

- After the exit inductivity loop is passed, the cylinder returns to the basic position



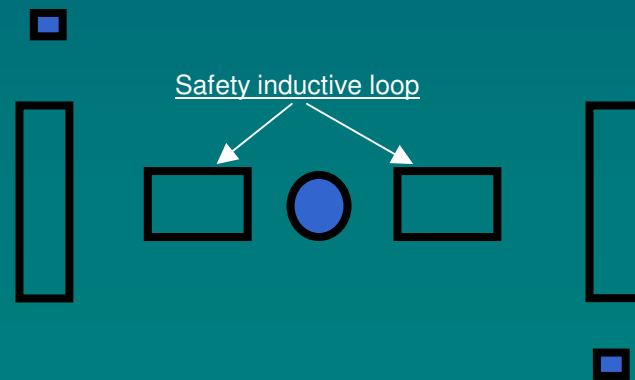
SYSTEM PERFORMANCE

Communication flow by entering card application



SAFETY REQUIREMENTS

- FIFO (First in First out)
- Sink Cylinder – Safety switch: stop by 40 kg burden
- Safety inductive loops: After the second safety inductive loop is passed the cylinder returns to the basic position.



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- Sink Cylinder – Safety switch: stop by 40 kg burden
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- By electricity black out the sink cylinder automatically sinks, the user status is put in the neutral position.
- Safety switch: the green light is on when the cylinder is at the lowest position

RESULTS

- The system works 24 h a day ! No complaints !
- Decreased congestion at the exit/entry gates
- Decreased overall traffic because of individual exit/entry limitation to the specific gates.
- Less: traffic, congestion, noise and air pollution, more safety for pedestrians
- Exit/entry control,
- Funds for cross financing
- No violations of rules

FURTHER SYSTEM DEVELOPMENT

- Hotel OREL:
 - Individual exit/entry gate
 - Credit card based entry ticket issue
 - At the hotel reception – normal entry card is issued (limited to the number of available parking)



Thank you for your attention !